



PAINLESS

PATIENT FACTSHEET

TITLE

Neuromodulation Stimulator Implants For Spinal Pain

SUMMARY

Neuromodulation or 'stimulator' implants have been used for a very long time to treat complex, treatment-resistant spinal pain. This factsheet explains how and why you may consider this procedure, as well as the potential risks and recovery requirements.

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COMPLEX SPINAL PAIN

Complex spinal pain is the term used to describe pain caused by a combination of factors, including facet joint, disc and nerve pain. Most often, these complex conditions cause lower back pain and/or leg pain, but may also be associated with neck and arm pain. Various treatment options are available for these types of pain. The most effective treatments involve a combination of therapies or interventions.

PROCEDURES FOR COMPLEX SPINAL PAIN

Complex pain is multifactorial and therefore requires multifactorial treatment. In some cases, your treatment may include procedural interventions.

A combination of procedures, including facet joint neurotomies, epidural injections and, sometimes, disc injections may be used to address each aspect of your pain individually.

Alternatively, a neuromodulation device, also called a stimulator implant, may be used. These devices are generally used only as a last resort but can be very effective for people with persistent complex pain.

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NEUROMODULATION STIMULATOR IMPLANTS

Stimulators have been used to address spinal pain for a long time. The device is implanted in the area of the body affected by pain. In the past, stimulators had a low success rate. However, newer devices – which offer a range of modes – appear to be more successful, helping two-thirds of the people who use them.

They work by delivering high-frequency electrical pulses to the spinal cord or peripheral nerves. This modulates the transmission of pain signals to the brain, thereby reducing pain.

The devices themselves are expensive – approximately \$40,000 per device. They also require frequent adjustment, by either the wireless programmer or, in some cases, manually in surgery.

HOW IT WORKS

Receiving a neuromodulation implant is a two-step procedure.

PART A: TRIAL STIMULATION

A trial allows you to experience neuromodulation and determine whether it is effective in lessening your pain.

1. You are placed under light anaesthetic sedation.
2. Small incisions are made, and the leads are placed using specialised needles.

3. The leads are connected to a temporary external stimulator, which delivers high-frequency stimulation to the area in which you are experiencing pain.
4. The external stimulator is disconnected, and the leads are removed.
5. The procedure is completed, and you are moved to the recovery room.
6. Once you awaken, we measure your pain levels to determine the success of the stimulator with respect to your pain. If the trial is successful, a stimulation implant procedure can be considered.

PART B: IMPLANTATION OF PERMANENT SYSTEM

1. You are placed under light anaesthetic sedation.
2. Small incisions are made to place the leads. The positioning of the leads will depend on where you experience pain.
3. A small pocket is made under the skin, usually in the gluteal area. There, the implantable pulse generator (IPG) battery is placed.
4. The procedure is completed, and you are moved to the recovery room.
5. You will receive a wireless programmer that you can use to adjust the stimulation.

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PLACEMENT OF THE STIMULATOR

The stimulator leads can be placed in different areas of the body, depending on your individual needs.

SPINAL CORD STIMULATION (SCS)

With spinal cord stimulation, the leads may be placed in the epidural space (within the spinal canal), with the electrodes connected to the spinal cord. This is called spinal cord stimulation (SCS).

DORSAL ROOT GANGLION STIMULATION (DRG)

With dorsal root ganglion (DRG) stimulation, the leads are placed in the epidural space (within the spinal canal), with the electrodes connected to the DRG. The DRG is part of the nervous system, close to the spine. It plays a key role in modulating pain signals. Stimulation of the DRG can interrupt pain signals, preventing them from travelling to the brain.

PERIPHERAL FIELD STIMULATION

With peripheral field stimulation, the electrodes are placed just under the skin in the area of pain. It is used primarily for peripheral nerve pain, not spinal pain.

RISKS & SIDE EFFECTS

High-frequency 10,000Hz stimulation and burst stimulation are now used more frequently than tonic stimulation. Tonic stimulation – the older model – used lower frequencies, causing people to feel tingling sensations in the area of pain relief. On the other hand, high-frequency stimulation isn't typically associated with sensations in the stimulation area.